WHAT IS CLAIMED IS:

1. A shift mechanism for an outboard motor mounted on a stern of a boat and having an internal combustion engine at its upper portion and a propeller at its lower portion that is powered by the engine to propel the boat, comprising:

an actuator installed in the outboard motor;

a shift rod installed in the outboard motor and connected to the actuator to be rotatable by the actuator;

a shifter clutch installed in the outboard motor and connected to the shift rod, the shifter clutch being movable by the shift rod from a neutral position to engage with at least one of a forward gear that allows the boat to be propelled in a forward direction and a reverse gear that allows the boat to be propelled in a reverse direction opposite to the forward direction;

a controller controlling the actuator to rotate the shift rod such that the shifter clutch moves from the neutral position to engage with one of the forward gear and the reverse gear, corresponding to an inputted shift instruction made by the operator, to effect shift; and

a shock mitigator mitigating shock generated during the shift.

2. A shift mechanism according to claim 1, wherein the shock mitigator comprising:

a plurality of gear projections each formed at a portion of the forward gear and the reverse gear; and

a first group of clutch projections formed on each end of the shifter clutch and having a first height and a second group of clutch projections formed on each end of the shifter clutch having a second height lesser than the first height, such that the first group of clutch projections first mesh with the gear projections so as to bring clutch rotation in synchronism with gear rotation, and then the second group of clutch

projections additionally mesh with the gear projections.

3. A shift mechanism according to claim 2, wherein the first group of clutch projections are formed on each end of the shifter clutch with a uniform space therebetween, whilst the second group of projections are formed on each end of the shifter clutch with a uniform space therebetween.

4. A shift mechanism according to claim 3, wherein the first group of clutch projections and the second group of clutch projections are formed on each end of the shifter clutch alternatively.

5. A shift mechanism according to claim 1, wherein the shock mitigator comprising:

a torsion portion of the shift rod whose diameter is decreased to be flexible by twisting about its axis when stress is exerted.

6. A shift mechanism according to claim 1, further including:

a reduction-gear mechanism connected to the actuator to reduce a rotation of the actuator and transmit it to the shift rod; and

a case accommodating the actuator and the reduction-gear mechanism as a unit at a position immediately above the shift rod.

7. A shift mechanism according to claim 6, further including:

a rotational angle sensor generating a signal indicative of an angle of rotation of the shift rod; and

a shift lever position sensor generating a signal indicative of a position of a shift lever selected by the operator from among neutral, forward and reverse positions;

and the controller inputs signals of the rotational angle sensor and the shift lever position sensor and controls the actuator in such a manner that the detected angle of rotation of the shift rod becomes a desired angle of rotation necessary for the shifter clutch to move from the neutral position to engage with one of the forward gear and the reverse gear determined from the detected position of the shift lever to effect the shift.

8. A shift mechanism according to claim 7, wherein the rotation angle sensor is accommodated in the case together with the actuator and the reduction-gear mechanism.

9. A shift mechanism according to claim 1, further including:

a reduction-gear mechanism connected to the actuator to reduce a rotation of the actuator and transmit it to the shift rod; and

an emergency gear manually connectable to the reduction-gear mechanism to rotate the shift rod to effect shift.

10. A shift mechanism according to claim 9, wherein the emergency gear is connected to a manually-operable grip that allows the emergency gear manually connected to the reduction-gear mechanism to rotate the shift rod to effect shift.

11. A shift mechanism for an outboard motor mounted on a stern of a boat and having an internal combustion engine at its upper portion and a propeller at its lower portion that is powered by the engine to propel the boat, comprising:

an electric motor installed in the outboard motor;

a reduction-gear mechanism connected to the electric motor to reduce a rotation of the electric motor;

a shift rod installed in the outboard motor and connected to the reduction-gear mechanism to be rotatable by a reduced rotation of the reduction-gear mechanism;

a shifter clutch installed in the outboard motor and connected to the shift rod, the shifter clutch being movable by the shift rod from a neutral position to engage with at least one of a forward gear that allows the boat to be propelled in a forward direction and a reverse gear that allows the boat to be propelled in a reverse direction opposite to the forward direction; and

a case accommodating the electric motor and the reduction-gear mechanism as a unit at a position immediately above the shift rod.

12. A shift mechanism according to claim 11, further including:

a rotational angle sensor generating a signal indicative of an angle of rotation of the shift rod;

a shift lever position sensor generating s signal indicative of a position of a shift lever selected by the operator from among neutral, forward and reverse positions; and

a controller inputting signals of the rotational angle sensor and the shift lever position sensor and controlling the electric motor in such a manner that the detected angle of rotation of the shift rod becomes a desired angle of rotation necessary for the shifter clutch to engage with one of the forward gear and the reverse gear determined from the detected position of the shift lever to effect shift.

13. A shift mechanism according to claim 12, wherein the rotation angle sensor is accommodated in the case together with the electric motor and the reduction-gear mechanism.

14. A shift mechanism for an outboard motor mounted on a stern of a boat and having an internal combustion engine at its upper portion and a propeller at its lower portion that is powered by the engine to propel the boat, comprising:

an actuator installed in the outboard motor;

a reduction-gear mechanism connected to the actuator to reduce a rotation of the actuator;

a shift rod installed in the outboard motor and connected to the reduction-gear mechanism to be rotatable by a reduced rotation of the reduction-gear mechanism;

a shifter clutch installed in the outboard motor and connected to the shift rod, the shifter clutch being movable by the shift rod from a neutral position to engage with at least one of a forward gear that allows the boat to be propelled in a forward direction and a reverse gear that allows the boat to be propelled in a reverse direction opposite to the forward direction; and

an emergency gear manually connectable to the reduction-gear mechanism to rotate the shift rod to effect shift.

15. A shift mechanism according to claim 14, wherein the emergency gear is connected to a manually-operable grip that allows the emergency gear manually connected to the reduction-gear mechanism to rotate the shift rod to effect shift.